



The

GARzette

The Official Newsletter of the Gwinnett Amateur Radio Society

February 2023 <http://www.gars.org/> Volume 50, Issue 2

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www.GARS.org

GARS January Exhibition of the
Technical aspects of Amateur Radio
Held at the Gwinnett County Fairgrounds



Don't forget to support our
advertisers at the back of the
GARzette.

GARS Meeting: Amateur Radio Emergency Service (ARES) – Hal – W4IGE, Larry – AB4NX

Tuesday February 14, 2023 at 7:00 PM

President's Message

From the President...



TechFest - Many of us feel the 2023, 25th Annual TechFest was a resounding success. So a heartfelt Thank You goes out to **David Adcock, KA4KKF** who volunteered to be the Chairman this year. Another huge Thank You goes out to our food supervisor, **Sherryl Bailey, N3MIU** for taking on the enormous task of arranging and procuring everything needed for this year's new TechFest 'food court'. A big thanks as well to **ALL the volunteers** who made this TechFest a success!

There are great pictures of folks enjoying TechFest in our groups.io GARS 2023 TechFest photo album, at
<https://groups.io/g/GARS/album?id=283237>

2023 GARS Club Officer Elections – We will be asking for any additional nominations for club officer positions for the elections at the February General meeting. To facilitate the process, Earl, AF4FG is our Nomination Committee Chairman position. You can let us know if you are interested in running for a position by contacting Earl in person, at the meeting or by using the GARS web email portal at: <https://www.gars.org/gars/email-apparel/>

GARS Officer Voting - members will vote on the officers during the February General meeting.

The nominations for officers currently are:

- President – Joe Biddle (AD4PZ)
- Vice President – Alex Kowalchuk (AK4AM)
- Secretary – Bill Hawkins (WR1TR)
- Treasurer – Pam Meridy (WB1AKQ)
- Program – Kevin Scott (K4GTR)

Radio On the Road...in a manner of speaking! I was visiting my sisters and brother-in-law in Kentucky recently. As soon as I arrived, I received an email from a local Ham stating he saw my APRS beacon; he welcomed me to the area. He speculated I was visiting family or looking for a new home and disclosed local repeater information and bid 73. A pleasant Ham Radio welcome it was.

My brother-in-law is active in the American Legion as well as the VFW, and frequents those facilities locally. I joined them on a visit to American Legion one day, and it was mentioned that there was a room in the American Legion dedicated to the W4CDA Radio Club. With two erected towers and HF beams atop, I was certainly interested to see inside this shack, but alas, it was closed this day.

A day or so later my sister was visiting there again, and she texted me, to inform me there were operators on site in that Club's room. So, I headed to the American Legion once again, where I met three gentlemen operating a contest from the site.

As we often encounter in Ham Radio, this was a very friendly group. We chatted a bit discussing many aspects of Amateur Radio – clubs, activities, ARES, local repeaters, AUXComm and other things from ARRL to governing politics of all levels. I let them get back to their contesting and joined my sister and brother-in-law for a beverage before leaving. I learned a bit of their take on ham radio within the Kentucky borders and their relationship with the local community. It was a nice visit and I will look them up again next time I visit.



Nice to meet:

Doug, KA4SWT, Chris, KG4UQL & Pete, KJ4ND

Get your Valentines plans executed early so you can join us Tuesday at our regularly scheduled meeting, and not catch too much heat for it.

73,

Joe Biddle, AD4PZ

Club President



GARS Repeaters and Other Communications

<u>2 Meter Repeaters</u>	<u>6 Meter Repeater</u>	
147.075(+) MHz Tone 82.5	53.110 (-1 MHz) No Tone (Offline for Maintenance)	6M Currently down
147.255(+) MHz Tone 107.2		147.075 Operational in Snellville
<u>1.25 Meter Repeater</u>	Other Resources:	147.255 Operational in Snellville
224.580(-) MHz Tone 100.0,	<u>APRS</u>	224.580 Operational in Grayson
1.6 MHz Offset	144.390 -- 1200 Baud	442.100 Operational at Goshen
<u>70 Cm Repeaters</u>	W4GR	Springs
444.525(+) MHz Tone 82.5	<u>D-STAR</u>	442.325 Operational in Buford
442.100(+) MHz Tone 100	WD4STR	444.525 Operational in Snellville
442.325(+) MHz Tone 100	145.060 + (1.4 MHz) 440.550 + (5 MHz)	Link remote receivers being added

Notable Web Links

Ham Radio Glossary: <https://noji.com/hamradio/glossary.php> a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

Need Help – Let GARS Elmers answer your questions

Send an email to elmers@gars.org with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.

For additional information view our Website at: <http://www.gars.org> [PS— Articles to publish in the *GARzette*, either written by GARS members or published elsewhere, are always welcome. —Ed.]

Newsletter Email: editor@gars.org Editor: Bob Hoffmann, K4CQO

GARS HELP WANTED

Multimedia Chair - We are looking for a volunteer who can video record our meeting presentations then edit and post these videos to the GARS YouTube channel. Kyle Albritton, W4KDA, will be available to train this volunteer. If you could perform this function, please contact any officer via the Officers and committee chairmen page to inquire about this position. <https://www.gars.org/gars/officers/>



GARS Meetings & Workshops

GARS Meetings and Workshops are held in-person at the EAA 690 Hangar, 690 Airport Rd, Lawrenceville, GA 30046.

Meetings and Workshops are OPEN to all, feel free to share your invite with others.

Zoom login info will be posted to <http://www.gars.org> prior to the meeting.

When events are available on Zoom

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName Call Sign**, e.g. **Hiram W1AW**
- [**How to change Your Display Name in Zoom**](#)
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat**.

GARS Meetings Schedule (second Tuesday @ 7:00 PM): (these are the presentations)

- February 14, 2023 - Amateur Radio Emergency Service (ARES) – Hal – W4IGE, Larry – AB4NX
- March 14, 2023 – Ribbit, a new digital texting mode for VHF/UHF – Pierre Deliou W4CKX
- April 11, 2023 - Pi-Star DMR Hot Spot - Mark Prichard KN2TOD

Workshop Schedule (third Tuesday @ 7:00 PM): (these are the Hand-on Workshops)

- February 21, 2023 - Amateur Radio Emergency Service (ARES) – Hal – W4IGE, Larry – AB4NX
- March 21, 2023 – Ribbit, a new digital texting mode for VHF/UHF – Pierre Deliou W4CKX
- April 18, 2023 - Pi-Star DMR Hot Spot - Mark Prichard KN2TOD

GARS Meeting – February 14, 2023

Amateur Radio Emergency Service (ARES) by Hal – W4IGE, Larry – AB4NX

The GARS meeting provides a presentation of interest to the GARS members in the second half of the meeting. The presentation will provide information about ARES and its various aspects of operation and how ham radio operators can participate.

GARS Workshop – February 21, 2023

Amateur Radio Emergency Service (ARES)

The workshop is a hands-on interactive meeting to further explain the ARES operations.

This will be an in-person Workshop at the EAA 690 Hangar.



GARS Happenings

20 Years ago in the February 2002 GARzette:

- The GARS newsletter (GARzette) is not available for February 2002. However, all available GARzettes from 1994 can be found and browsed for your enjoyment.

You can always browse the GARzette archive at <http://www.gars.org/newsletters>. 73, Bob, K4CQO, GARzette Editor

Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on [Email \(https://gars.org/contact/\)](https://gars.org/contact/) and use it as a means to convey information about a GARS family member or Silent Key notification.

Net Managers Corner

Monday Night 2 Meter “Want, Swap, Sell, and Information Net”

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

Out of almost 300 members, there are only seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Don – KW4AL
Glen – W3WWT

Ray – N4GYN
Russell – AB4QQ

Bill – WG9NUW
Chuck – KK4TKJ

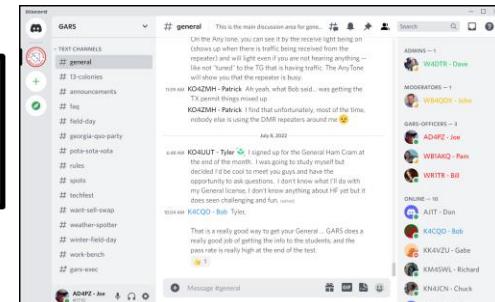
David – KA4KKF
Charlie – WS4TOT

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The “Want, Swap, Sell Information Net” begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact (Chuck) via [Email \(https://gars.org/contact/\)](https://gars.org/contact/) to help support the effort that makes GARS the great club that it is. See you on the Nets!

*** We have recently lost two of our Net Control Stations. We need more stations. It only takes about a half an hour of your time every 4 to 8 weeks depending on the number of Net Control Stations. Please volunteer. The script is on the GARS web site and can provide a MS Excel spreadsheet for logging. ***

Don't forget about our Discord utility for GARS announcements, news, activity spotting and more. See <http://www.gars.org> top of the home page. This is a sample of Discord. →





GARS TechFest

Excellent TechFest was held in January! Kudos to everyone who helped and attended. If you missed it, you missed a great event, and here are some pictures.



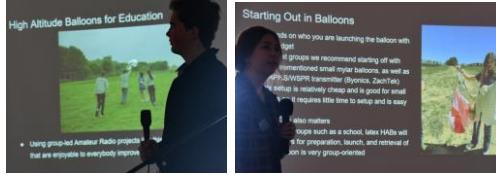
Food & Chili



License Testing



Some of the Presentations



GARS License Testing at TechFest

The GARS VE Team had a great exam session at TechFest.

8 New Technicians
1 New General
3 Upgraded to General
1 Upgraded to Extra
10 Failed

Special thanks to the Volunteer Examiners who made this exam session possible:

W4DTR - Dave (CVE)
KK4TKJ - Chuck (Co-CVE)
KM4SWL - Richard

K4CQO - Bob
WR1TR - Bill
WB4WTN - Bill

W4GOP - Nathan
N4XYY - Rick
WB2OGY - Steve

Upcoming GARS Elections

February each year, GARS has its officer elections. In the February meeting (2/14/23) any additional nominees can be provided and the present members will vote for the GARS officers. The current list of nominees:

President	Joe Biddle	AD4PZ
Vice President	Alex Kowalchuk	AK4AM
Treasurer	Pam Meridy	WB4AKQ
Program Manager	Kevin Scott	K4GTR
Secretary	Bill Hawkins	WR1TR

Upcoming Georgia HamCrams

- 2-Day Technician Ham Cram, Saturday & Sunday, March 25 – 26th, 8am to 4pm each day
- 2-Day General Ham Cram Saturday, April 29th, and Sunday, April 30th, 8am to 4pm each day

Register for each class on <https://GARS.org/>

Upcoming Georgia Statewide POTA

Mark the Date! On the weekend of April 1-2, 2023, there will be state-wide POTA activations of all 50 Georgia State Parks!



The idea is to enlist enough hams from all over to fan out across the state and activate 50 parks over the course of that one weekend.

We will have a website where details, signups, etc., will be posted. In the meantime, keep an eye on the event description and comments on the "Georgia Ham Radio Portable" Facebook page: [Georgia State Parks on the Air](#).

GARS Amazon Donations Ending

Amazon is stopping its donations to all entities as part of its program on February 20th. If you had GARS as the donation group, it is no longer active.

GARS can still get a donation from spending at Kroger with Kroger Community Rewards . Click here <http://www.krogercommunityrewards.com/> to log into your account to select "Gwinnett Amateur Radio Society" to receive your Kroger Community Rewards.

GARS Enterprising Member

GARS Personalized Mugs for sale – Bits Print and Press

Jolie Dellaneve-Brown, KO4AHI



After showing some of my mugs at a GARS meeting, I was asked to make some 25th anniversary mugs to be given as door prizes at the Tech Fest. I made those as well as several customized ones for some of the members. I used 15 oz. mugs but I also have them available in 11 oz. size. Below are pictures of some that I have done. If you are interested in getting a mug, shirt, hat or any other item, please contact me at bitsprintandpress@gmail.com. I can also put pictures and any specialized logos on the items. If you are interested in something not listed, please contact me to check on availability. Turnaround time is usually 2 to 3 days depending on the complexity and if the artwork is easily accessed.

I sincerely appreciate the support of the GARS club members.



Prices are:

- Simple 11oz Mugs - \$12
 - Detailed 11oz Mugs - \$18
- Simple 15oz Mugs - \$15
 - Detailed 15oz Mugs - \$20
- Simple Shirts - \$20
 - Detailed shirts - \$30
- Mousepads - \$15
- Koozie - \$3 to \$6 depending on design
- Coaster square or round \$3.50
- License plate - \$20
- Tumbler 20 oz - \$20 to \$25



All prices include sales tax.

Background:

I got my Technician license in 2019 and joined GARS shortly afterwards. My grandparents, Harold (KI4FPR) and Pam (KJ4RYV) Brown are also GARS members.

My grandparents became my guardians when my mom died when I was seven. I was homeschooled from the 4th grade until I graduated from high school this past year (2022). While attending a private homeschool academy once a week, I was introduced to sublimation by my Graphics Design teacher and became her intern / student. One of the projects was making mugs. I loved the process and decided this was to be my career. In lieu of college, I chose to start my own home-based business, **Bits Print and Press**. I make custom designed products such as mugs, hats, shirts, mouse pads, tumblers, etc. using a process called sublimation. The transferred design is made by using special inks and "blanks" and then heat pressing it so the print is chemically fused into the item. The print will never fade or wash off. I am also able to make customized vinyl prints.

CQ de W1AW/4 Georgia

CQ CQ CQ DE W1AW/4 Georgia

Also known as the [ARRL Volunteers on the Air \(VOTA\)](#) event. The ARRL's theme for 2023 is the "Year of the Volunteers". To celebrate that we have (2) 1-week periods to get on the air to make contacts using the ARRL call of W1AW/4. This can be done individually, as a group, or as a club event similar to Field Day.

Simply make as many contacts as you can on as many bands/modes as you can giving each station you put in your log 5-points for working W1AW/4.

There are 3 operating periods for this event:

- For us in Georgia to use the W1AW/4 call they are:
 - Feb 8th at 0000Z until 2359Z on the 14th of Feb (Please sign up)
 - Oct 11th at 0000Z until 2359 on the 17th of Oct
- The use your call the event began on January 1st and ends on December 31st and is [already underway, see the ARRL site for details](#).



YEAR of the
VOLUNTEERS



What are the requirements to sign up and take a few time slots? Simply use any logging software that can produce an ADIF file to be submitted to the ARRL.

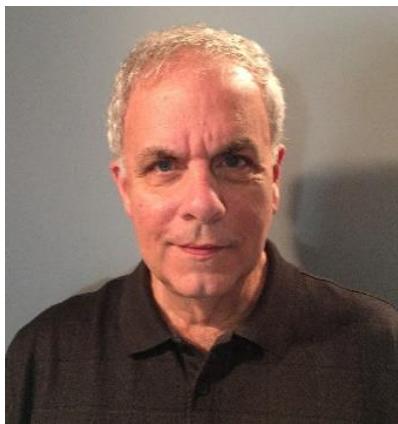
For more info here is a link to a [Google Doc](#) which is updated as we learn more about this event. It also has details on how to use the Google Sheet to request day of the week time slots by band and mode. The [Google Sheet](#) that has a tab for every day of the 7-day event. You can quickly see what time slots have been taken and which ones are open.

73 Dallas N4DDM

The Drake TR-5 and TR5 Story

Vintage Amateur Radio

de Bill Shadid, W9MXQ



As a collector of Vintage Radios, I am often described by fellow collectors as focusing on Drake and Hallicrafters. To a great degree, that is true – and perhaps especially true of Drake. But, a lot of Collins and National equipment lives in my collection as well. For a radio collector who is somewhat older nowadays, the light weight of Drake radios is a Godsend. (Perhaps apart from the power supply for the Drake L-4B and L7.)

Drake is a fascinating company – perhaps because I once lived a short distance from their Miamisburg plant, perhaps because I visited that plant, and perhaps because many models of these fine radios remain effective even on today's radio bands. The Drake R-4C Receiver and T-4XC Transmitter are widely supported with third party accessories and improvements to this day. The TR7, TR7A, and TR5 transceivers enjoy a wide following¹ and accessories in current production that rival those from Drake during their active years.

Perhaps even more than the Drake separate receivers and transmitters (R-4 and T-4X series), I have a fascination with the Drake transceivers – those being the TR-3, TR-4, TR-6, TR-4C Series, plus the solid state TR7/TR7A and TR5. Except for the six-meter TR-6, all these transceivers exist in the W9MXQ collection. Several TR-6 transceivers have come and gone over the years².

Drake's Transceivers fall into several categories:³

1. The Traditional 9 MHz i-f Transceivers (Vacuum Tube w/some Solid State)

- Drake TR-3⁴
- Drake TR-4
- Drake TR-4C Series
 - TR-4C
 - TR-4CW
 - TR-4CW/RIT
- Drake TR-6

2. The Up-Conversion (48.05 MHz i-f) Transceivers (Solid State)

- Drake TR7 Series
 - TR7
 - TR7A

3. The Traditional 5.645 MHz Transceiver (Solid State)

- Drake TR5

For this installment, we are going to talk more about the last transceiver from Drake, the TR5, and an earlier version of that transceiver, the TR-5. Some considerations:

1. What was the original TR-5 transceiver? (Note the dash in the model number.)
2. Was the TR5 really a low cost TR7? (Note no dash in the TR5 model number here.)
3. Why did the VFO in the TR5 turn backwards – as compared to the TR7?
4. What feature in the TR5 stood out at the time it was introduced, in 1982?

Note the similar nomenclature with the earlier TR-5 (with a dash in the model number) and the later TR5 (without the dash in the model number – more in keeping with the “dash-less” model designations starting with the TR7).

So, what was the TR-5 transceiver? First, when searching for this model, the search engine used will generally find the Drake TR5 – not the original TR-5. (Again, be aware of the use of the “dash” in the model name.) It appears from what can be found that Drake did consider a replacement for the last of the TR-4C series, the TR-4CW/RIT, in the form of a hybrid transceiver referenced as the TR-5 – a natural progression from the TR-4 moniker. It had a familiar Drake look in this picture:



Drake TR-5 Transceiver⁵. See following text for more explanation for details of this transceiver.

Very little is known about it and information I have gathered from conversations is that it was a solid-state radio except for a driver and final(s). One can presume, but not be certain, that it contained the same driver and finals as the TR-4C series. A look at the then current TR-4CW/RIT example (plus a repeat of the TR-5 picture) shows layout features that changed:



Drake TR-4CW/RIT

WB4HFN



Drake TR-5

The VFO placement changed rather substantially with the move from the right side of the radio to the left. The PA compartment is on the rear left in all TR-3 and TR-4 models but appears to be on the rear right on the TR-5 (check the ventilation opening at the right rear of the TR-5 picture). The change from the dual horizontal Plate Current and S/AGC meters in the TR-3/4 to the more conventional metering in the TR-5 would have been welcomed by this writer and many fellow collectors that I know.

It is difficult to determine all the control functions on the front of the pictured TR-5. And, for prototypes it is hard to tell if the controls shown were acting in accordance with their dial legend markings. Beyond the VFO control, perhaps the Tune and Load Controls as well as what appears to be a Preselector/Drive Control; the rest is a guess with some easier than others.



There has always been some conjecture that perhaps Drake and Hallicrafters worked together as Hallicrafters slowly exited the ham radio market. Their corporate owners, Northrup Corporation (now Northrup Grumman), were moving more into military electronics. Hallicrafters had by that time approached the end of the line by marketing their last amateur radio transceiver, the FPM-300 Mark II. I have never come to a personal conclusion on the possibility of the TR-5 being a repackaged FPM-300. Look here at the two radios (again with the TR-5 Picture repeated):



Hallicrafters FPM-300 Mk II



Drake TR-5

W9MXQ

The placement of the PA and VFO on both units is similar. I can see some control relationships as well. But we likely will never know the story of any collaboration and/or intentions. I have always felt that the FPM-300 had more of a Drake look than a Hallicrafters appearance. Check this comparison of the second to last Hallicrafters radio to the final one – the FPM-300 compared to the SR-400 Cyclone:



Hallicrafters FPM-300 Mk II Safari

W9MXQ



Hallicrafters SR-400 Cyclone II

W9MXQ

That FPM-300¹⁰ **does not** have a Hallicrafters look! But it **does** have a Drake look!

So, time moves on and the TR-5 became the radio that never was. I leave this subject with a disclaimer. I do not know for certain if my own rationale for the TR-5 and the FPM-300 is true. I am a long-time collector and have seen a lot of things and heard a lot of stories and have enough time in grade to make an educated guess. But, to paraphrase the intro line from an old television detective show⁶, "There are a million stories in ham radio – this has been one of them."

So, Drake moves on – and knows that an all solid state radio is in their future and continue with the development of their yet to come flagship, the TR7 Transceiver – destined to change how amateur radio equipment was to move into the 21st century. The TR7, part of an earlier article, entered the market in 1977 and the TR-5 project is history.

The TR7 line grew in the late 1970's to include the R7 Receiver and a whole line of accessories. As 1980 approached, the TR7 was a performer but was aging and lacked some of the features of the Japanese competition. As you have learned from this series before, Drake began to work on the

successor radio, the TR8. Apparently, at this same time, Drake felt the need to field a lower cost transceiver. But, what do we call it? The work on the TR8 was apparently in process and the idea of a lower cost transceiver hitting the market as the TR9 before the deluxe TR8 seemed to be a problem (I assume). So, what to do?

Design goals of this new transceiver seemed to focus more on the features of the old TR-4C series than the TR7 or upcoming TR8. To my knowledge, no real information exists on the details of the new transceiver's development, suffice it to say that the decision was to name it the TR5 – back to the use of the “5” in the series. This number was never used in a transceiver actively marketed by Drake. The earlier TR-5 development did not come to light for some years – so it seemed okay. TR-3 and TR-4 were taken, TR-6 was taken with a six-meter dedicated transceiver, TR7 was taken, TR8 was taken and under development, and I can imagine that TR9 was off the table.

And yet, there is more. Many people have believed for some time that the TR5 was a cost reduced TR7. In my opinion, that was not true. Let us look at Drake's two main radio transceiver architectures and compare them with the TR5:

Radio				
Item	Feature	TR-4CW/RIT (the last TR-4C)	TR7/TR7A	TR5
1	I-F Frequency	9.000 MHz	48.050 MHz	5.645 MHz
2	Dial Direction	Left Turning Up Frequency (backwards)	Right Turning Up Frequency	Left Turning Up Frequency (backwards)
3	RIT Control	Yes	Yes	Yes
4	WARC Bands	No	Yes	Yes
5	Optional Filter	NO (CW is Standard)	Yes (Multiple)	Yes (One)
6	General Coverage	No	Yes	No
7	Digital Readout	No	Yes	Yes
8	RF Power Output	150 watts (Nominal)	150 watts (Nominal)	80 watts (Nominal)

Now we can check the main features, by the number, to see where there are similarities:

1. I-F for the TR-4 series, at 9.000 MHz fit early convention in SSB generation. The conversion scheme led to bands below 9.000 MHz being on Lower Sideband and bands above 9.000 MHz being Upper Sideband. I-F filters for different bandwidths were readily available at 9.000 MHz center frequency. The TR5 was the same except that Drake did not want to use 9.000 MHz filters – rather the 5.645 MHz filters they used in the TR7 line. Switching circuitry in the radios of the day made the decision to be LSB or USB easy at no matter what i-f was used. So, the TR5 was more like the TR-4CW/RIT than the TR7.
2. This was a negative, but Drake copied the TR-4CW/RIT and let the dial tune backward for the TR5. In the end, for this one, the TR5 was more like the TR-4CW/RIT than the TR7 for all the wrong reasons.
3. All three transceivers had RIT – so no comparison here. For reference, only the quite rare last version of the TR-4C, the TR-4CW/RIT had the RIT feature.
4. This is not a necessary comparison. The TR-3 and TR-4 models did not have the WARC bands because they did not exist when the models were marketed.
5. All three transceivers had slots for optional filters – so not a real comparison here. For reference, only the last two version of the TR-4C, the TR-4CW and the TR-4CW/RIT, had the ability to access one optional filter – as did the TR5. So, the TR5 was the same as the last two TR-4C models, the TR-4CW and the TR-4CW/RIT. (The TR7 has three optional filter bandwidth slots.)

6. The TR-3 and TR-4 Series radios and the TR5 did not have General Coverage Receive (or Transmit). The TR7 did offer that General Coverage feature. So, the TR5 was more like the TR-4CW/RIT than the TR7.
7. The TR-3 and TR-4 Series radios did not have Digital Readout. The TR5 and TR7 Series did. That was the sign of the times and not a comparison for this analysis.
8. RF Power Output was a serious issue with Drake and the TR5. The TR5 did have what were probably lower cost PA transistors that could not match the power level of the TR7 Series radios⁷. So, what was Drake thinking? The lower cost of the PA Transistors and the lower cost of the PS75 AC Power Supply (see details below) probably drove Drake to make the decision to opt for the lower power output. As history has shown, this was a marketing error.

So, checking the above you can see that the TR5 is more of a solid-state version of the TR-4CW/RIT than a cost reduced TR7. The confusing thing about the TR5/TR7 radios is that they look so much alike – but only on a fast glance. They are completely different radios. Here they are together – along with what I see as the predecessor to the TR5, the Drake TR-4CW/RIT (picture repeated from earlier in the article):



Upper: Drake TR5 HF Transceiver
Lower: Drake TR7A HF Transceiver
 (Both with MN7 Speaker and 7077 Desk Microphone)

W9MXQ



Drake TR4CW/RIT
HF Transceiver
 (Last of the TR-4C Line)

WB4HFN

The TR5 was not a successful product for Drake. It was expensive, the power output was low in comparison to customer expectations of at least 100 watts and the dial turned the wrong direction. That last issue was on the older TR-3 and TR-4 series radios but somehow the digital readout on the TR5 aggravated the issue with the frequency on the readout going up while the dial was turned to the left. I can attest to that being aggravating on my TR5 – and on my TR-3, TR-4, and TR-4C to a point. On the earlier radios, the left rotation moving up in frequency was duplicated on the analog dial that also went up when tuning the dial to the left. So, it really was not as bad a mental issue as it was on the TR5.

It is widely publicized among Drake aficionados that the TR5 included the digital (PLL) VFO included in the Drake RV75 External VFO as the standard internal VFO in the transceiver. This is incorrect – the TR5 has a regular PTO⁹ just like the TR7 – and for that matter one very similar to the ones Drake had used in their radios for years. My use of the TR5 seems to indicate it being more stable than the TR7 and TR7A that sit beside it in the collection. However, that is a subjective comment that if true is more tied to late circuit improvements in the old design than to any significant stability improvement.

The Drake TR5 and TR7 series radios shared many cabinet components. The Wrapper (Drake's name for the wrap-around top and sides) were identical and interchangeable. However, the TR7 Wrapper has speaker openings on the left side while the TR5 Wrapper has no such openings – the TR5 speaker is bottom mounted. The end trim pieces on the front panel are identical. The front extrusion and panel inserts are overall size and design identical but punched differently. The TR5 has no backup analog

readout where the TR7 Series does have a back-up analog readout. (For a very short time at introduction, the digital readout in the TR7 was optional.) The Digital Readout was the DR7 and at first a digital readout equipped TR7 was called a TR7/DR7.

Generally, the accessories offered for the TR7 series also worked with the TR5. There is only one exception to which I am aware – and it was never marketed. I am speaking of the Drake RV5 External VFO. Here is a picture of that accessory in prototype form:



WB4HFN

The Drake RV5 External VFO was never produced, as noted in the text. However, it was identical to the RV7 except for tuning direction. I am reasonably sure that this prototype unit was made from pieces of an RV7.

Using the RV7 with the TR5 works correctly except for the nagging reverse tuning. It is even worse with the RV7 because the TR5 and RV7 VFO's are tuned opposite from each other.

At the time of the introduction of the TR5, Drake also introduced a cost-reduced AC Power Supply that, while it would work with the TR7 Series, it was more suited to the lower power requirement of the TR5. This was the very well-built Drake PS75. It was a lightweight sister to the 25 Ampere Continuous Power Drake PS7. The PS7 was designed to work with the original TR7. The PS75 was very dependable at about 15 Amperes, with peaks to 25 Amperes tolerated. Drake warned that running CW above a drain above 15 Amperes (like with a TR7 running full power) could produce "CW signal quality degradation."



Drake PS75 Rear Panel View
(PS75 on top of Drake PS7)

W9MXQ



Drake PS75 Front View

W9MXQ

Both the PS7 and the PS75 brought out 12 VDC at 1 Ampere for accessories. Also, both power supplies brought out connections for Linear Amplifier Control and Transmit AGC from the TR5 or TR7. (The PS7 shown has since been equipped with the optional FA7 Fan Kit.) These are both analog power supplies

and quite heavy.

The PS75 is quite rare – nearly impossible to find. The TR5 at 300 units produced and with the production of PS75 at not nearly 1:1 in build ratio so those would be difficult to find by default. The TR5 itself is extremely rare. Most TR5 owners that I know run their radios with a PS7 Power Supply just because they are easier to find.

Worth mentioning is the fact that the TR5, for whatever its foibles, provided some of the best receiver noise figures of the time. The TR7 was a leader in being a quiet receiver and was superior⁸ to the far more expensive Collins KWM-380 of the time. The TR5 was superior in receiver performance to both more well-known radios. The TR5 also possessed quite capable, if a bit noisy, CW QSK. I find the TR5 to be comfortable to use on CW and its 80 watts of output power never presents a problem. I use my TR5 barefoot all the time – having tested it only once to confirm its operation driving a Drake L7 Linear Amplifier.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, W9MXQ@TWC.com.

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a bit more than a proofreader as he often adds commentary that makes it into the article.

Credits and Comments:

¹ The TR5 Transceiver is very rare as Drake radios go – with perhaps less than 300 ever having been made available to the ham radio public. The Drake TR7 and TR7A, along with radios from Ten-Tec, were perhaps the last of the American made, competition grade radios before the current generation of new manufacturers in this country.

² Six meters has never been a focus at W9MXQ. Perhaps it is antenna related. I hope to change that one day in the future. One of my good friends, Ken, W9GA, is an avid six-meter aficionado and I believe that he holds DXCC on that band. Ken's expertise in all thing's VHF, UHF, and beyond is enviable. So, perhaps another TR-6 is in my future!

³ The TR-3, TR-4, TR-4C, TR5, TR7, and TR7A are part of the W9MXQ Collection.

⁴ The TR-3 is more of an early TR-4 than a different model number. I presume that it got its "3" designator as a follow on to the 1A and 2 series Receivers and 2NT Transmitter popular at the time. There are a lot of similarities between the TR-3 and the early TR-4 transceivers. One big point was that the TR-3 used three 12JB6 finals while the TR-4 and all subsequent 4 series transceivers used three 6JB6 finals.

⁵ The TR-5 picture is from LA6OP.

⁶ The television show was "The Naked City," 1960-1963 television series, © Screen Gems Television.

⁷ The final transistors in the TR5 were MRF455 devices – capable of about 70 watts per transistor. Given a safety factor it is likely that Drake legitimately felt the radio should be rated little more than one of them. The 80 watts was probably correct.

⁸ The performance comparisons can be found from data found in published Collins and Drake Literature and Operating Manuals.

⁹ The "VFO" in the Drake TR5 is essentially the same as the one in the TR7, the TR4, and the R-4 & T-4X series radios. Reference the Drake TR5 Instruction Manual, Section 4-1, "Injection and Counter Circuitry," page 4-1. © R. L. Drake Company.

⁹ The original FPM-300 had no marketing name. However, the FPM-300 Mk II was called the "Safari." This was like the use of the "Cyclone" name for the SR-400 Series Transceivers. Reference "Radios by Hallicrafters," Chuck Dachis, ISBN 0-7643-0807-6, © 1999 by Dachis. Pages 95 and 98.

W9MXQ



GARS Membership

New Members List in January

Mike Cooper (KI4HQD)
Marc Lulkin (K9TOE)
JD Masters (KQ4ELD)
Kandace Millet (KQ4FOZ)
Roy Rickert (KQ4DRH)
Kenneth Schroder (KC4SR)
Randy Tonne (KN4DY)
Blaine Wasden (KO4USS)
Kathy Wasden (KO4USR)
Carlin Wong (KQ4FQC)

New Members: 10

Total Members as of February 1, 2023

362

Join GARS members for our weekly breakfast gathering at 7:30 AM most Saturdays Now at Cracker Barrel Restaurant 75 Celebration Dr. Suwanee, GA 30024

Birthdays in February

Marvin Atherton (KG4FHB)
Lauren Atkin
Don Bagby (KK4NJM)
Shari Branson
Michael Curtis (KK4WWB)
Juan Manuel Dominguez (N5JMD)
Tom Forkner (KQ4EWO)
Eddie Foust (WD4JEM)
Bob Hensey (K4VBM)
Sandy Jackson (KJ4DRO)
Suzy Jones (KK4MWC)
Eva LaBerge (N4OCO)
Bruce Lindsey (K0GNB)
Edward Lodden (KX4KL)
Steve Marlowe (KN4VCQ)
David May (KK4SWN)
Carlton McPherson (WA4ZUW)
Ricardo Medina (W4RMZ)
Aaron Morris (KG4ALB)
Steven Richardson (N4STR)
George Sensibar (W9RR)
Lori Silva (KK4NFW)
Luann Smith
Lee Stone (KT4LS)
Emily Wagner (KN4GZJ)
Sharon Willet (KM4TVU)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message. To become a GARS member, or to renew your GARS membership, please visit our website – <http://www.gars.org>. To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please contact the Membership Chair at Email (<https://gars.org/contact/>) with any changes to your Membership information.

Membership Chair: Karen Albritton, KI4HPP

Committee Members: Dave Bruse, W4DTR

ARRL MEMBERSHIP

To update your ARRL membership information, please visit their website - <http://www.arrl.org>.

MAINTAIN YOUR LICENSE

You can update your Amateur Radio license information with the FCC at their website for free - <https://www.fcc.gov/wireless/universal-licensing-system>. License renewal is subject to the \$35 FCC fee.



Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education
- (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Amazon Smiles;
- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

<http://gars.org/gars/donations-to-the-club>

GARS on Social Media



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<http://gars.org/groups.io>



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P.O. Box 492531
Lawrenceville, GA 30049

Officers



Joe Biddle, President AD4PZ



Jamie Burns, Vice President KX4HA



Bill Hawkins, Secretary WR1TR



Pam Meridy, Treasurer WB1AKQ



Kevin Scott, Program Manager K4GTR

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Karen Albritton, Membership Chair KI4HPP



Dave Bruse, VE Team Leader W4DTR



David Adcock, Webmaster, Field Day Chair, TechFest Chair KA4KKF



Ralph Pickwick, Education Chair KJ4CNC



Earl Whatley, Apparel Manager AF4FG



Bob Hoffmann, GARzette Editor K4CQO



Eddie Foust, Repeater Chair WD4JEM



Mike Weathers, WAS / DXCC QSL Card Checker and Historian ND4V



Chuck McCord, Net Manager KK4TKJ



Steve Back, Technical / RFI Advisor WB2OGY



Dallas Mellichamp, Workshop Leader N4DDM



Don Stewart, Elmer Manager KW4AL



Sandy Jackson, Health and Wellbeing KJ4DRO

Open Winter Field Day Chair

Open Georgia QSO Chair

Open Multimedia Chair

Directors and Trustees



John Davis, WB4QDX



Rick Cobb, N4XYY



Kyle Albritton, W4KDA



Bill Cherepy, WB4WTN W4GR Trustee



GARS Meeting Minutes

Gwinnett Amateur Radio Society – MEETING MINUTES, 1/10/2023

There were 45 in-person attendees in addition to online participants.

President Joe Biddle (AD4PZ) opened the meeting at 7:00 p.m. and closed the meeting at approximately 8:45 p.m.

New hams and visitors: Joe (AD4PZ)

- No first time visitors.
- No new hams or upgrades recognized.
- Round the house introductions.

Treasurer Report: Joe (Ad4PZ)

Apparel: Earl (AF4FG) has orders ready to pick up.

Education: Ralph (KJ4CNC)

- Go to the web site and sign up for the tech or general ham cram
- Some of our supported schools will have tables at TechFest. Make sure to stop by and check them out.

VE Team: Dave (W4DTR)

- 3 new hams 2 upgrades from this week's test session
- Techfest Exam will be in the small forum room. First time exams will be paid for by GARS. Exams will run from 9:00 a.m. to 11:00 a.m.

ARES: Jamie (KX4HA)

- ARES meetings are held the 4th Tuesday of each month at the Gwinnett County EOC on High Hope Rd.
- This month's presentation will be Winlink forms.

Programs: Kevin (K4GTR)

- February – ARES will present
- March – Rabbit – digital text mode for UHF/VHF
- April - PiStar DMR hotspots
- Check the web site for all scheduled programs.

Workshop: Dallas (N4DDM)

- Workshops mirror the monthly program.

Techfest: David (KA4KKF)

- This Saturday Jan 14 at the Gwinnett Fairgrounds in the main building. Starts at 9:00 a.m.
- Volunteers needed for setup at the fairgrounds at 1:00 p.m.
- Volunteers for teardown are needed. Check GARS.org or Techfest.info.
- Great prizes for the raffle.
- Demonstrations and exhibits from multiple clubs.
- Chili cookoff – Enter on the web site. Lunch is free.
- Admission is free.
- Door prize ticket is free.
- Raffle tickets are available online or at the door.
- Joe (AD4PZ) went over the floor plan. Thanked everyone that has helped with pulling it all together.

Repeater: David (KA4KKF)

- No certain date on when EchoLink will be up.

Other: Joe (AD4PZ)

- Officer elections will be held in February. Earl is heading up the committee. Nominations can be made by form or on the floor. Descriptions of the positions are on the GARS site.
- Jolie Brown showed us her custom mugs. She can do any design we want.
- Ralph (KJ4CNC) Hamfest treasurer presented the donation for our help with the Hamfest. This year we were very low on volunteers. We need more next year.
- David (KA4KKF) made an inspiring speech and general call for volunteers for all events.
- We need a Winter Field Day chair.

Program: Kevin (K4GTR) Everything below the AM broadcast band.

Minutes prepared by club secretary Bill Hawkins (WR1TR).

Workshop Minutes - January 17 2023

Number in Attendance: 15

Workshop Topic: What's Below 160m

Presenter: Kevin Scott K4GTR

Brief Summary: Kevin continued a little more on the topic of What's Below 160m and concluded with live audio of some of the stations. We all wished Jolie KO4AHI happy birthday. There was a lots of discussion of how well TechFest was attended and how a great turn out of volunteers made it easy to setup and tear down.



Events – GARS and others

ARRL CONTESTING INFO		HAMFEST CALENDAR
<p>From ARRL Contest Calendar</p> <p>> For more information click the links <</p>		[Please confirm the status of a Hamfest before making plans to attend]
<p>2023 January</p> <p>1 Straight Key Night</p> <p>7 Kid's Day</p> <p>7-8 RTTY Roundup</p> <p>21-23 January VHF Contest</p>		<p>02/10/2023 - 02/12/2023 Orlando HamCation, ARRL SW Division Convention</p> <p>Location: Orlando, FL</p> <p>Type: ARRL Convention</p> <p>Sponsor: Orlando Amateur Radio Club</p> <p>Website: http://www.hamcation.com</p>
<p>February</p> <p>13-17 School Club Roundup</p> <p>18-19 International DX – CW</p>		<p>02/18/2023 - Highlands County Amateur Radio Club Hamfest</p> <p>Location: Sebring, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: Highlands County Amateur Radio Club</p>
<p>March</p> <p>4-5 DX Contest -- SSB</p>		<p>02/18/2023 - The Hernando County Amateur Radio Association Hamfest</p> <p>Location: Brooksville, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: The Hernando County Amateur Radio Association</p> <p>Website: http://www.hcara.org</p>
<p>April</p> <p>16 Rookie Roundup – Phone</p> <p>May</p> <p>No planned contests</p>		<p>02/24/2023 - 02/25/2023</p> <p>9th Annual TECHCON - ARRL W Cent. Florida Section Technical Conference</p> <p>Location: Tampa, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: ARRL West Central Florida Section</p> <p>Website: http://arrlwcf.org/wcf-special-events/wctechconference/</p>
<p>June</p> <p>3-4 International Digital Contest</p> <p>10-12 June VHF</p> <p>17 Kid's Day</p> <p>24-25 Field Day</p>		<p>02/25/2023 - Dalton Hamfest</p> <p>Location: Dalton, GA</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: Dalton Amateur Radio Club</p> <p>Website: https://www.facebook.com/DaltonAmateurRadioClub/</p>
<p>July</p> <p>8-9 IARU HF World Championship</p>		<p>03/03/2023 - 03/04/2023</p> <p>BirmingHamfest, ARRL Alabama Section Convention</p> <p>Location: Trussville, AL</p> <p>Type: ARRL Convention</p> <p>Sponsor: Birmingham Amateur Radio Club</p> <p>Website: http://birminghamfest.org</p>
<p>August</p> <p>5-6 222 MHz and Up Dis Contest</p> <p>19-20 10 GHz & Up – Round 1</p> <p>20 Rookie Roundup – RTTY</p> <p>EME - 2.3 GHz & Up</p>		<p>03/17/2023 - 03/18/2023</p> <p>The 53rd Annual PARC Hamfest</p> <p>Location: Fort Walton Beach, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: Family Eye Care, 17 Racetrack Rd NW Ste A, Fort Walton Beach, FL 32547</p> <p>Website: http://w4zbb.org/w4zbborg/index.php?page=Hamfest</p>
<p>September</p> <p>9-11 September VHF</p> <p>16-17 EME - 2.3 GHz & Up – Rnd 2</p> <p>9-10 10 GHz & Up – Wknd 1</p>		<p>03/18/2023 - Stuart Hamfest</p> <p>Location: Stuart, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: Martin County Amateur Radio Association</p> <p>Website: http://www.stuarthamfest.com</p>
<p>October</p> <p>29-29 EME - 50 to 1296 MHz</p> <p>16-20 School Club Roundup</p> <p>EME - 50 to 1296 MHz</p>		<p>03/18/2023 - ZAARC Tail Gate</p> <p>Location: Zephyrhills, FL</p> <p>Type: ARRL Hamfest</p> <p>Sponsor: ZAARC Radio Club</p> <p>Website: http://zaarc.org</p>
<p>November</p> <p>4-6 Nov. Sweepstakes - CW</p> <p>25-26 EME - 50 to 1296 MHz</p> <p>18-20 Nov. Sweepstakes - Phone</p>		<p>For more information: http://www.arrl.org/hamfests-and-conventions-calendar</p> <p>When searching by division, remember some states adjacent to GA are in different divisions:</p> <p>Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC</p>



GARS Events Calendar for 2023		GARS Recurring Calendar	
TechFest Winter Field Day Spring Technician HamCram Dog Show Fundraiser Georgia QSO Party North metro area Fox Hunt Summer General HamCram Memorial Day Parade ARC/KARC Hamfest Field Day JOTA Fall Technician HamCram Maker Faire Stone Mt. Hamfest Holiday Party	January 14 2023 January 28-29 2023 March 25-26 2023 March 29-April 2 2023 April 8-9 2023 April 2023 April 29-30 2023 May 29 2023 June 3 2023 June 24-25 2023 October 2023 October 2023 TBD November 4-5 2023 December 2 2023	<ul style="list-style-type: none">2nd Tuesday of the month at 7 pm (except December) Monthly Club Meeting 690 Airport Rd, Lawrenceville, GA 300463rd Tuesday of the month at 7 pm (except December) Monthly Workshop 690 Airport Rd, Lawrenceville, GA 300462nd Sunday of the Month at 2 pm GARS Ham Exam Session 690 Airport Rd Lawrenceville, GA 30046Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeaterEvery Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeaterMost Saturdays at 7:30 am GARS Weekly Breakfast Cracker Barrel Restaurant 75 Celebration Dr., Suwanee, GA 30024	

GARS CALENDAR FOR February 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4 7:30 AM Breakfast at Cracker Barrel in Suwanee
5	6 7:30 – 8:00 PM GARS 2M Net	7 7:00 PM GARS Exec Meeting EAA 690 Hangar	8	9	10	11 7:30 AM Breakfast at Cracker Barrel in Suwanee
12 2:00 PM GARS VE Exam Session EAA 690 Hangar	13 7:30 – 8:00 PM GARS 2M Net	14 7:00 PM GARS Meeting EAA 690 Hangar	15	16	17	18 7:30 AM Breakfast at Cracker Barrel in Suwanee
19	20 7:30 – 8:00 PM GARS 2M Net	21 7:00 PM GARS Workshop Meeting	22	23	24	25 7:30 AM Breakfast at Cracker Barrel in Suwanee
26	27 7:30 – 8:00 PM GARS 2M Net	28				



Local Ham Radio Exams & Meetings

GARS Ham Radio Exams

Second Sunday of the month

Doors open at 1:45pm, exams start promptly by 2:00pm

GARS VE-Team

VEC: W5YI-VEC

EAA 690 Hangar

690 Airport Rd

Lawrenceville, GA 30046

GARS VE Team Leaders

E-mail: exams@gars.org.



January 2022 Results

The GARS VE Team had a great exam session.

2 new Technicians

1 new General

2 Upgraded to General

Special thanks to the Volunteer Examiners who made this exam session possible:

W4DTR - Dave (CVE)

WB4WTN - Bill

AF4FG - Earl

KM4SWL - Richard

WB2OGY - Steve

KK4TKJ - Chuck (Co-CVE)

KM4FMW - Donna

K4CQO - Bob

Thanks & 73,

Dave Bruse, W4DTR (CVE)

GARS VE Team Leader

<https://gars.org/exams/>

Local Ham Radio Exams

In order to find an exam session near you, please visit

http://www.arrl.org/exam_sessions/. Contact the information in the listing for further information.



Local Ham Radio Meetings

In order to find a local Ham Radio Club meeting near you, please visit

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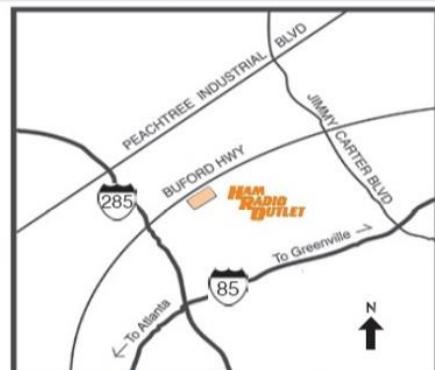
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